September 8, 2010

Ms. Marlene H. Dortch
Federal Communications Commission
The Portals, TW-A325
445 12th Street SW
Washington, DC 20554

Re: Notice of *Ex Parte* Presentation
Schools and Libraries Universal Support Mechanism – CC Docket No. 02-6;
A National Broadband Plan for Our Future -- GN Docket No. 09-51.

Dear Ms. Dortch:

On Tuesday, September 7, 2010, I had a discussion by telephone with Sharon Gillett, Chief of the Wireline Competition Bureau, and Regina Brown and Lisa Gelb of the Wireline Competition Bureau staff concerning the addition of "dark fiber" to the list of Eligible Services supported by the E-rate program. During our discussion, I made the following points:

- OSHEAN has been delivering 1Gibabit per second links via dark fiber to institutions of higher education, hospitals, and state agencies for over seven years at costs that are about 75% lower than commercial rates.
- OSHEAN's member RINET (Rhode Island Network for Educational Technology) provides network connectivity to RI's K-12 schools and public libraries. RINET has not been able to take advantage of OSHEAN's dark fiber service because the service is not reimbursable under current E-Rate rules.
- Rhode Island generates about $1.2M in funds through the RI Telecommunications Education Access Fund (RI TEAF) through a fee imposed on land line users in RI. These funds are inadequate to pay for the amount of capacity requested by the schools and libraries. Currently 25% of RI schools utilize links of 100Mbps. More have requested such capacity, but we are unable to fund any more at this speed due to the cost.
- RI schools pay between $9.50 and $14 per megabit per second for a 100Mbps local loop connection (these costs are reimbursed by E-Rate at rates of 59-90% and this figure does not include Internet access fees, just the cost of the line to the school or library). OSHEAN members who use dark fiber-based services pay approximately $1.30 per mbps for a 1000Mbps connection. So, for roughly the same amount of money, they obtain 10 times the capacity.
- Claims that a dark fiber solution is too expensive have proven false in Rhode Island. By utilizing Wave Division Multiplexing (WDM) equipment that allows schools to share dark fiber pairs and carry up to 8 separate networks on a single pair of fiber we can deliver much more capacity at lower rates per Mbps. Coarse WDM (CWDM) equipment is sufficient for local school districts and costs only as much as a small router (approx. $10K per installation). This equipment has a useful life of about 5 years, so the annualized cost is about $2,000 per year or about $0.16 per Mbps per month on a 1000Mbps dark fiber link.

- OSHEAN has applied for a $21.2M NTIA BTOP Comprehensive Community Infrastructure (CCI) grant in Round 2. The goal of this project is to provide a middle mile fiber backbone in each of Rhode Island five counties, and two counties in nearby Massachusetts. Our K-12 schools, however, will not be able to fully leverage this investment by the Federal government if funding of dark fiber remains ineligible for E-Rate reimbursement.
- OSHEAN has received a $1.2M BTOP Public Computer Center grant and has partnered with the Ocean State Libraries, a consortium of over 70 public libraries, to bring over 700 computers to libraries throughout the state for use by the public. These computers are used by citizens to search for jobs, complete on-line job applications, create resumes, apply for Federal aid, and recently, to apply for assistance from FEMA after RI experienced the worst flooding in a hundred years. Yet, the current E-Rate funding is not sufficient to meet the increase in broadband demands. Having dark fiber as an eligible E-Rate expense would allow libraries to affordably meet this increased demand for bandwidth.
- Limiting E-Rate eligibility only to dark fiber services that utilize existing fiber assets or prohibiting ownership of the fiber asset will reduce the effectiveness for many schools and libraries. This stance, limiting E-rate to existing fiber, might benefit those who already have fiber assets in place, but would prohibit schools and libraries from fully utilizing fiber that may be installed as part of BTOP awards, or in cases where the building and owning of fiber is clearly the most cost-effective way to deliver broadband capacity. It is important to remember, that an investment in dark fiber provides infrastructure, not just services, that will serve the school and library communities for decades.

Commercial providers have made claims that K-12 schools and libraries do not have the demand for broadband that warrants 100 or 1000Mbps broadband connections. Below are examples of the uses we are seeing in Rhode Island schools and libraries today;

- Rhode Island's 70+ public libraries provide Internet access for students after schools close. The demand for broadband connectivity after hours from libraries typically spikes to more than double the throughput during K-12 school hours. Many students use libraries because they don't have broadband or computers at home, but still more utilize portable computing terminals they bring in to access the Internet through the library's wireless access points. In all cases the ability for students to collaborate on work, work independently and maximize their experience in Rhode Island's public libraries is directly correlated to the quality of the broadband connection at the library.

- **Virtual Desktops:**
  Districts are also employing Virtual Desktops served from a consolidated data center to save on tech support costs and desktop hardware costs. Examples:
  - Pawtucket: http://www.zdnet.com/blog/virtualization/pawtucket-school-district-a-virtual-iron-success-story/377
  - Westerly: http://www.schoolcio.com/showarticle/27044

The above solutions rely heavily on a robust network infrastructure, without which schools and libraries cannot employ the time- and money-saving strategies that are de facto in the corporate world.

- **Streamed Educational Video:**

  The majority of Rhode Island schools support several hundred workstations used by students and teachers to access streamed video content. The traffic requirements for streamed educational video are massive. Current broadband capacity is limiting educational access to;
  - YouTube and TeacherTube high definition videos that use 4Mb per stream.
  - Discovery Education streamed videos sponsored by Rhode Island Public Broadcast Systems (RIPBS) for participating RI schools and libraries. Increasing demand for this service is forcing teachers to display these videos on a projector rather than allowing students to investigate and learn on their own.
  - RIPBS is launching a new pilot program including streamed, interactive explorations which will require even more bandwidth than traditional streamed content

It is our belief that we will need to utilize many different technical tools to help address the ever-increasing demand for broadband by our schools and libraries. We view dark fiber as just one more arrow in our quiver that can be used to hit our target of providing our students and citizens with the broadband capacity they need to fully utilize the Internet. We hope you will consider re-instating dark fiber as an eligible service under E-Rate to provide us with another tool to meet this need.

Sincerely,

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